CLAIMS:

1. (Currently Amended) A method for modeling a coil spring on a suspension system in terms of derived torque and force characteristics of the coil spring, said method comprising the steps of:

providing a physical six degree of freedom force field generator for simulating the spring;

securing the force field generator to the suspension system;

activating the force field generator to produce forces for characterizing six degree of freedom spring reaction forces;

measuring suspension characteristics; and

deriving a coil spring design specification based upon the measured characteristics.

2. (Canceled)

3. (Original) The method according to claim 1, wherein the force field generator comprises a Stewart platform.

4. (Currently Amended) A method for modeling a coil spring in terms of torque and force characteristics to produce a spring design for an automobile suspension, said method comprising the steps of:

assembling a physical six degree of freedom mechanism having spaced apart moveable platforms and a plurality of actuable links interconnecting the platforms at corresponding joints on opposite ends of each link;

specifying a kinematics relationship between the platforms and the links;

applying the mechanism to the automobile suspension;

actuating the links to generate corresponding applied forces and torques at each joint;

measuring the applied forces and torques; and

deriving the force and torque characteristics of the coil spring to be designed based upon the kinematics relationship and the corresponding applied forces and torques at each joint.

5. (Canceled)

6. (Original) The method according to claim 4, wherein the platforms are in spaced apart parallel relationship having confronting parallel support surfaces corresponding to opposite ends of the spring to be modeled.

7. (Original) The method according to claim 4, wherein the actuable links employ at least one universal joint.

8. (Original) The method of claim 4, wherein the actuable links employ at least one ball joint.

9. (Original) The method of claim 4, wherein specifying a kinematics relationship between the platforms and the links comprises deriving a vectorial relationship between each link and the platforms.

10. (Previously Presented) The method of claim 9, wherein establishing the vectorial relationships includes deriving force and torque vectors acting on the mechanism by one of said platforms with respect to another one of said platforms.

11. (Original) The method of claim 4, further comprising the step of: adjusting the forces applied to each actuable link.

12. (Original) The method of claim 4, further comprising the step of: designing the spring in accordance with the derived force and torque characteristics.

13. (Original) The method of claim 12, wherein the coil spring has a variable pitch and the step of: designing the spring comprises selecting a pitch for the spring for producing a resulting side force in the spring.

14. (Previously Presented) The method of claim 4 wherein the platforms are movable between rest and compressed positions and the deriving step includes the step of computing the force and torque characteristics while the platforms are compressed.

15. (Previously Presented) The method of claim 14, comprising the step of: computing force and torque vectors employing Finite Element Analysis software.

16. (Previously Presented) The method of claim 15, wherein computing the force and torque vectors comprises the step of: employing kinematics software.

17. (Original) The method of claim 16, comprising the step of: converting the computed force and torque vectors for each link into axial forces employing a cubic spline interpolation.

18. (Previously Presented) The method of claim 4, further comprising simulating in at least one of Finite Element Analysis and kinematics simulation software.

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Currently Amended) A system for modeling a coil spring on a suspension system in terms of derived torque and force characteristics of the coil spring, said system comprising:

a physical six degree of freedom force field generator for simulating the spring, wherein the force field generator is secured to the suspension system and is

activated to produce forces for characterizing six degree of freedom spring reaction forces;

at least one force sensor for measuring suspension characteristics; and

a sub-system for deriving a coil spring design specification based upon the measured characteristics ~~for performing the method of claim 1.~~

26. (Currently Amended) A system for modeling a coil spring in terms of torque and force characteristics to produce a spring design for an automobile suspension, said system comprising:

a physical six degree of freedom mechanism having spaced apart moveable platforms and a plurality of actuable links interconnecting the platforms at corresponding joints on opposite ends of each link, wherein the platforms and the links include a kinematics relationship, wherein the mechanism being applied to the automobile suspension, and wherein the links are actuated to generate corresponding applied forces and torques at each joint;

at least one force sensor for measuring the applied forces and torques; and

a sub-system for deriving the force and torque characteristics of the coil spring to be designed based upon the kinematics relationship and the corresponding applied forces and torques at each joint ~~for performing the method of claim 4.~~